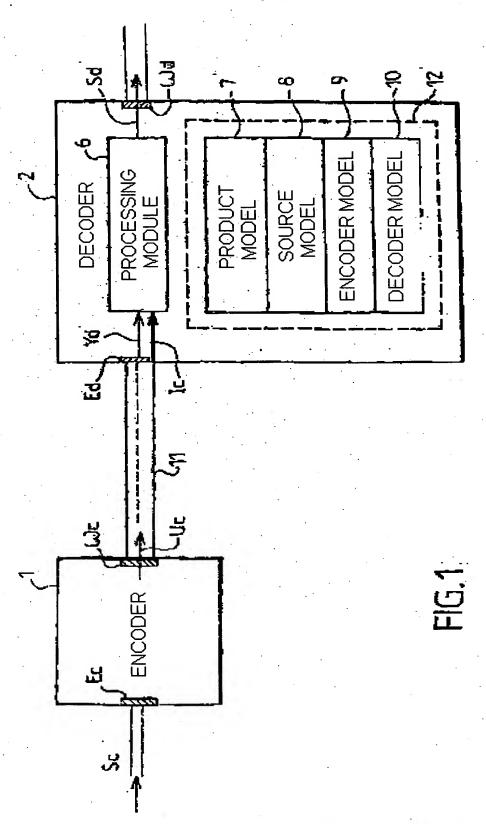
Title: DEVICE AND METHOD FOR ROBUST DECODING OF ARITHMETIC CODES

Inventor(s): Thomas GUIONNET et al DOCKET NO.: 017346-0184

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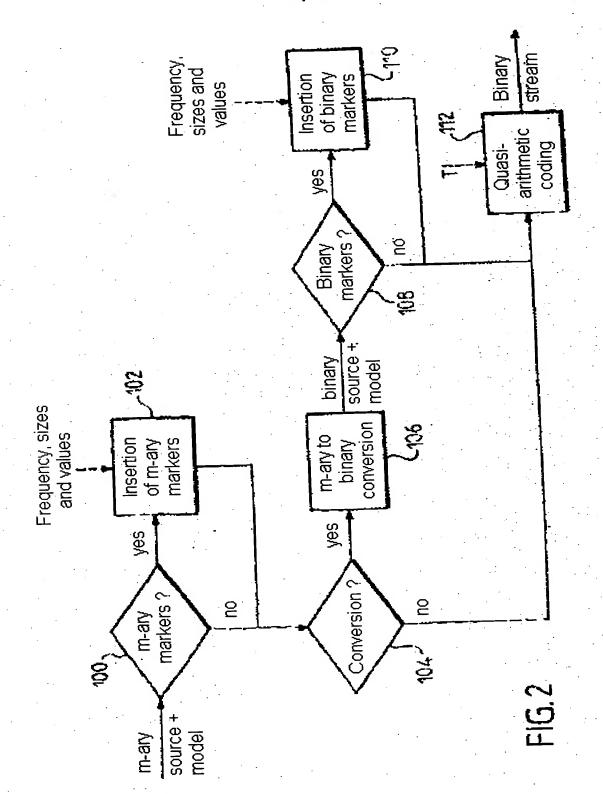


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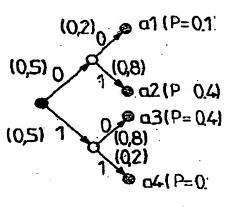


FIG 4a

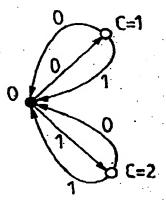


FIG.4b

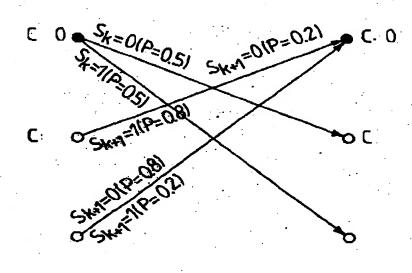
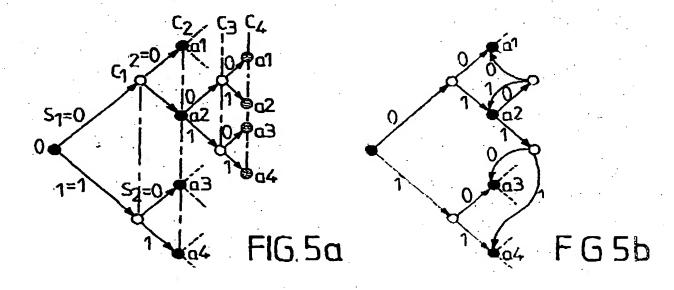


FIG.4c



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_	<b>-</b>					•			٠	•	
	nodel.	PS next	00	0			Α. E.	next state	-0	0	
£5,7	simplified states model	Sk= bits emitted	£. e.	2			<u></u>	symbols emitted	- LPS	PS	
	lified	Sk = MPS bits next emitted state	-C3	0			~	next state	0	0	
	sim	Sk = bits		0			K2	0	ž v	54	
	odel	state	00~	00	00		· .	symbols emitted	SON SON	MPS,LPS	
22/	normal states model	Skal	E- 1	<u>ڳ</u> ۔	<del></del>			ing		1	
	mal st	Sk = 0 oits   next nitted   state	-00	00	00	) Je		P(MPS) (corresponding subdivision of [low Skn, upSkn [	1603  (24M)9 × 600 1503  (24M)9 × 600	Σ. Ξ	Table 2
	nor	SK bits	·og	08	8	Table		(MPS) (correspon subdivision of flow Skn, upSkn	E SE	063 £ P(MPS)	Tab
		<u> </u>	1000	1021	[1,3]			Subd subd subd	15. B	063	
	:	P(0), correspoding subdivision interval	S VE	<u>5</u> 5	<u>s Pidi</u>   < 05		Σ		1 <del></del>	- L	
		)), correspo subdivision interval	0.63 × P(0) 7 × P(0) × 0.37 P(0) × 0.37	0.5 < P(0)	05 <u>s (</u>	*		State variables	[10wUn,upUn] : [0,4]	و ي	
			o ma					e var	NowUnupUn	HowthupUn NewSka,upSka	
	2:-	YSMO]	10,1	0 9	17/1			Staf	Powl Pows	[10w]	
		State E,	0	-	2		·	State	0	~	

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	SM4	( <sup>M2</sup>	(M3	ζ <sup>M4</sup>
	State Xk	State variables	MPS.	LPS
	() Initial state	1041 C=0	bits emitted:0 next state: 1	bits emitted: 1 next state: 2
•	1	10,41 C=1	· .	bits emitted:11 next state: 0
•	2	1041 C=2	1	bits emitted:11 next state: 0
	3	]EQ] 0=3	bits emitted: 0 next state: 1	bits emitted: 0 next state: 2

FIG.6A

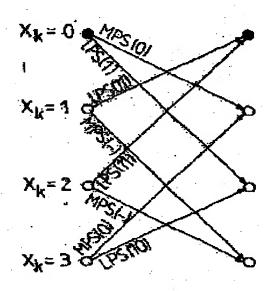


FIG.6B

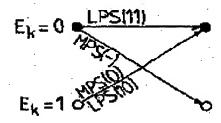


FIG.7A

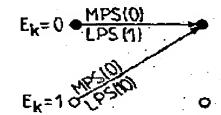


FIG.7B

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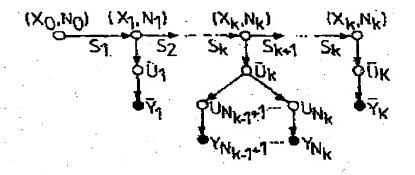


FIG.8

State X <sub>k</sub>	State variables	U <sub>n</sub> = 0	U <sub>n</sub> = 1
O Initial state	[0,4[ [0,4[ C=0	symbol emitted : MPS next state : 1	symbol emitted:LPS next state : 2
1	(0,41 (0,41 C=1	symb emitted:MPS,MPS next state : 1	symbol emitted: - next state : 3
2	104[ 104] [=2	symb emitted:MPS,MPS next state : 1	symbol emitted: - next state : 4
3	12.4.1 10.4.1 C=1	symb emitted:MPS,LPS next state:2	symbol emitted: LPS next state : 0
4	1241 1041 C=2	symb emitted:MPS,LPS next state:2	symbol emitted: LP9 next state : 0

FIG.9a

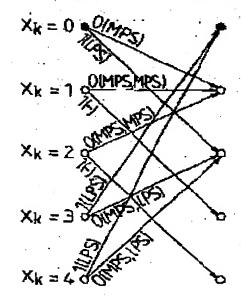


FIG.9b

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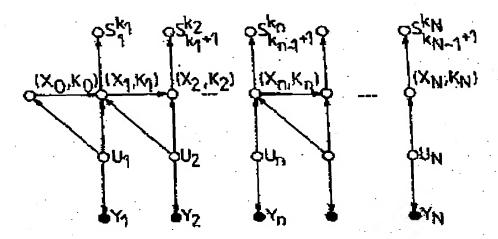
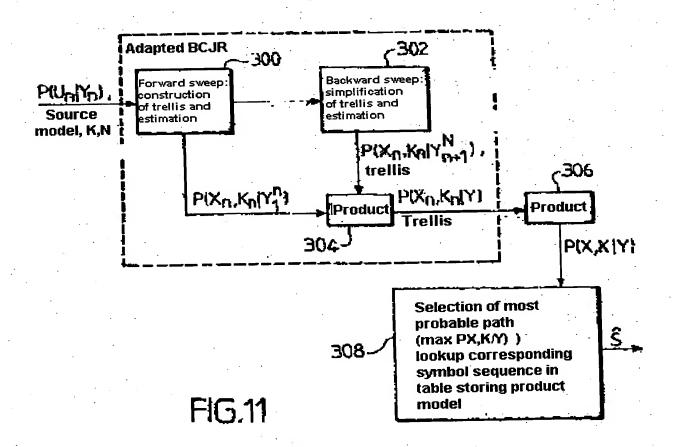


FIG.10



Title: DEVICE AND METHOD FOR ROBUST DECODING OF ARITHMETIC CODES

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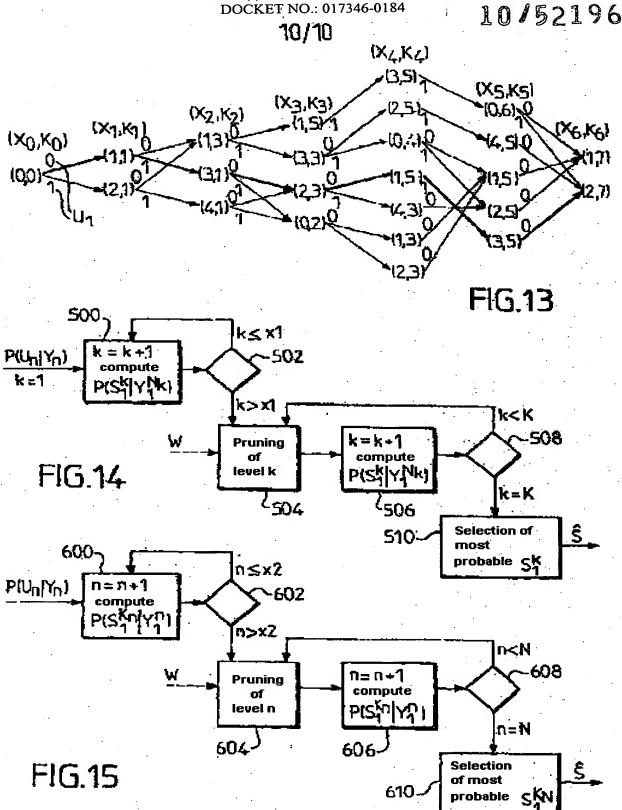
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Source model, K,N 400 Forward sweep: construction Construction of estimation trellis Trellis overloaded Backward sweep simplification **Trellis Adapted BCJR** 410 P(Xn,Kn(Yn) -408 Forward<sup>®</sup> sweep  $P(X_{n}K_{n}|Y)$ P(Un(Yn) **Product Product** 406 Backward P(X,K[Y)  $P(X_{B_i}K_{B_i}Y_{B+1}^N)$ sweep 412-Selection of most probable path (max P(X,K/Y).) lookup corresponding symbol sequence in table storing the product model

FIG.12

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